

READINESS &  
TRAINING



# The Joint Test & Training Range Roadmap and The Need to work corporately

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**DUSD(R) R&T**



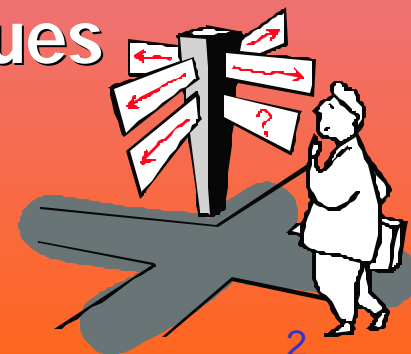
# Briefing Overview



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## Briefing will be in two parts

- Part 1 – Joint Test & Training Range Roadmap Review & Progress Report
- Part 2 – Joint Interoperability Issues





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# Part 1

## Joint Test & Training Range Roadmap Review & Progress Report

# A Common Approach to Instrumentation Investment



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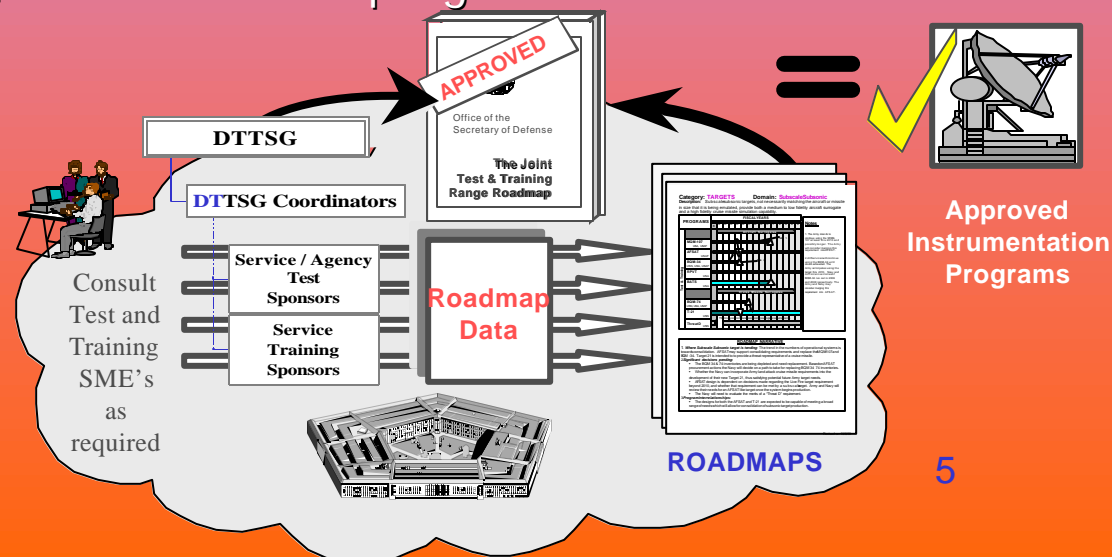
- Reflect the Instrumentation Investment Plans for T&T Range Development
  - Modernize to Common Instrumentation Systems as Appropriate
  - Strengthen Common Test and Training Threads
  - Compatible Test and Training Foundation (Interoperable, Reusable, Sharable)
  - Integrate Live and Virtual Test and Training Instrumentation Systems Where Sensible
  - Provide flexible approach that can adapt to the management style of each Service/ community
  - Addresses Other T&T Partnering Concerns
    - Range Cooperatives, Common Architectures

# JTTRR Overview



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- **Purpose**
  - A 15 yr Test and Training Range Instrumentation Investment Plan
    - Guidance to aid Services in planning, and OSD in oversight
- **Vision** - *"Cost effective development and seamless employment of range instrumentation while enhancing joint and mutual test and training capabilities."*
- **Scope**
  - includes RDT&E, procurement and/or MILCON funding exceeding:
    - \$1M in a single year, or \$5M over life of program
- **Target audience**
  - Internal DoD document
- **Format**
  - Roadmaps
    - By instrumentation category (Ex. - Targets)
  - Supporting Narrative



# JTTRR Policy



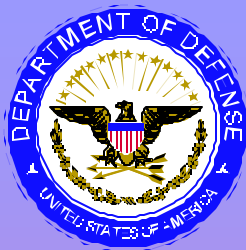
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- USD(A&T) (Dr. Gansler) 2 March 1999 Policy memo

*All investments in the development and acquisition of major new Test and Training Range Instrumentation, to include major upgrades to legacy systems, will be roadmapped in accordance with the JTTRR process. The resulting roadmaps will be submitted to the DTTSG for approval.*

- Major means \$1M in any year or \$5M over life of program
- “Test & Training” means all investments in either the test or training community, or joint T&T, that exceed the threshold
- Established POM 02 as baseline goal

# Understandable Graphical Representation



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## Two Page Roadmap Format (Mockup for Illustration Purposes)

**Category:** TSPI **Domain:** Radar

**Category/Domain Description:** Radar systems used for detecting and tracking a training unit(s) or system(s) under test and collecting time, space, position and other information.

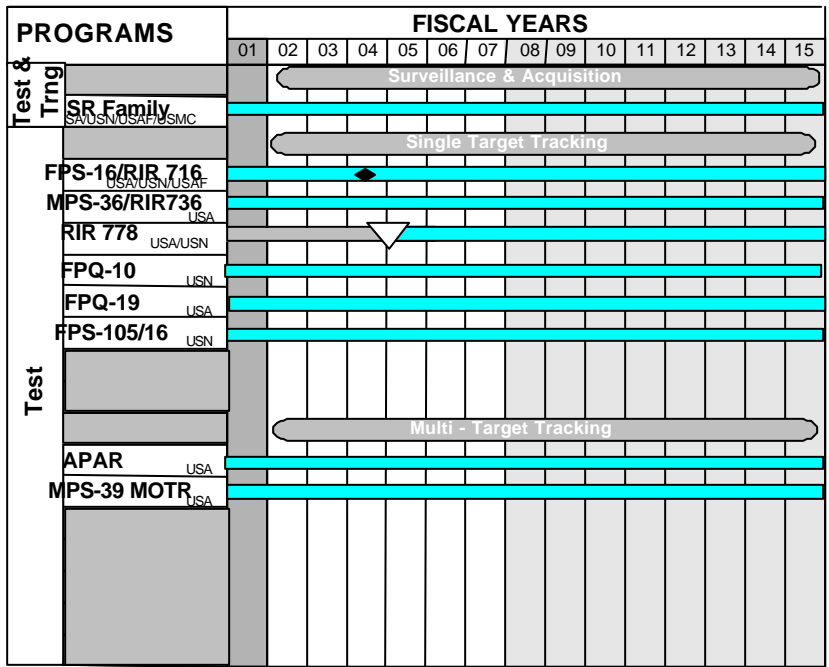
**Overview :**

**Roadmap Discussion :** Underwater ranges are classified on the roadmap by their primary function. T&E underwater ranges at (or in the vicinity of) AUTEC, Andros Island, Bahamas. Torpedo verification, production lot acceptance and developmental T&E underwater ranges are located at Keyport, WA (DABOB), and Vancouver B.C. ( Nanoose). Training underwater ranges are located at Pacific Missile Range Facility (PMRF), HI, SCORE (San Clemente Island, CA) and Atlantic Fleet Weapons Training Facility (AFWTF) in Puerto Rico. A new Shallow Water Training Range (SWTR) is programmed for installation in the Camp Lejeune/Cherry Point operating areas commencing in FY 2002. All underwater ranges can support both T&E and training events, limited only by ambient water conditions and geographic constraints. The Naval Undersea Warfare Center (NUWC) is the Navy's technical agent for array development. Underwater ranges last 20-25 years once deployed, and each array is representative of the best technology available at the time of installation. Shore node processing and display capabilities are updated as technology advances dictate and affordability allows. Acoustic TSPI is correlated with other source TSPI (RADAR, GPS, etc.) to provide a complete picture for each test or training event.

In addition to it's primary T&E mission, AUTEC's range is routinely used by Atlantic Fleet units for training. AUTEC also provides a unique NATO and U.K. T&E capability that includes acoustic signal measurement capability. Keyport's Nanoose range is a cooperative arrangement providing test and training services to both U.S. and Canadian forces.

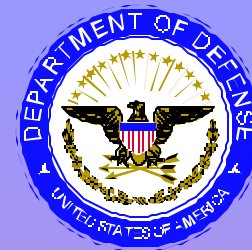
AFWTF, SCORE and PMRF arrays provide multi-national and U.S. training for Atlantic and Pacific Fleet units as well as specific development and operational test data points for acquisition programs and COMOPTEVFOR. SWTR, when installed, will add to that capability for Atlantic Fleet units. Geographic and hydrographic differences in the ranges provide fro test and training in varying water (ambient noise, hydrography) conditions and location of the ranges allows for closer proximity to fleet units (reduced transit time) as well as larger areas that can accommodate major fleet training (and operational test) exercises.

**Decisions pending:**



# Completed Roadmaps\*

## DTTSG Approved, Dec. 2000



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- TSPI

- Air
- Ground
- Sea

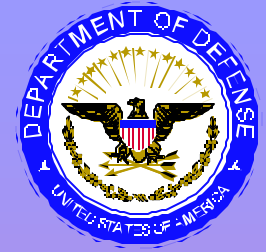
- Targets

- Rotary Wing Targets
- Seaborne Targets
- Aerial Tow Targets
- Anti-Radiation Missile Targets
- Mobile Ground Targets
- On-Board Scoring
- Supersonic Missile Targets
- Full Scale Aerial Targets
- Sub-scale Subsonic Targets
- Target Control Systems

**\* Note:**  
Status to be  
reviewed and updated  
biennially!



# Roadmaps to Address in 2001



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## Now Under Construction – Fall 2001

- Develop the following:

- TSPI
  - Radar
  - Optical
- Targets
  - Theater Multi-stage BMT
  - Theater Single-stage BMT
  - Strategic BMT \*
  - Non-mobile Ground Targets \*
- Scoring System
  - Range Scoring Systems

- Mission System
  - Control Systems
  - Information & Decisions Systems
  - Display & Debriefing Systems
  - Processing Systems
  - etc.

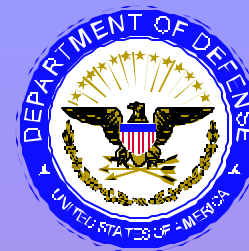
- Range Communications
  - Telemetry \*
- Threat Systems
- Urban Operations Facilities

\* May be deferred to next cycle

**\* Maybe spring  
2002!**

- Review and Update of existing TSPI and Targets (as required)

# Pending...?

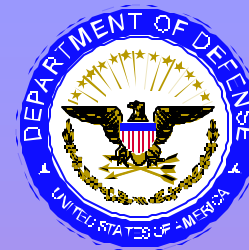


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- Communications
  - Intra-Range
- Survey
- Architecture
- ???



# JTTRR Update Schedule Status



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May -

**Distribute:** Roadmaps w/Datasheets  
& draft JTTRR Outline for Approval

**Workshop:**

June -

**Begin:** draft of narrative JTTRR  
elements for review

July -

**Distribute:** Revised data collection  
tool, Updated Roadmaps, Datasheets  
& data requirements

August **(On track so far)**

**Services Submit:** Comments to  
updated Roadmaps, Updated  
datasheets, Status of action items

**Workshop:** Review any roadmap  
issues, narrative elements,

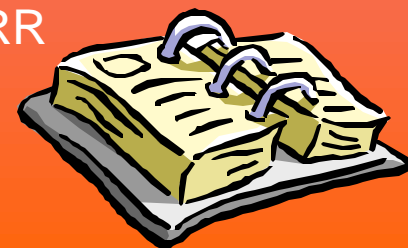
September

**Review and Coordinate:** Roadmaps  
& Document

October

**Murder board:** DTTSG Brief  
**DTTSG:** Approve JTTRR

Note:  
Schedule slipping with pressure  
of off-year POM/QDR!



# In Future



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- Continued Roadmap Development
  - Added Categories/Domains
- Linkage to Test Resource Master Plan (TRMP)
  - Potential use of common database and single data call (T&E)
  - Merging JTTRR and T&E Investment Cycle Schedules
  - BoD(ES/ESS) Prototype Roadmapping
    - Air Combat
    - Armament Munitions
- Linkage to Strategic Planning Activity



# Lessons Learned



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- The JTTRR is strongly supported by senior leaders thru the DTTSG
- Between evolving changes in T&T missions, lean budgets and external pressures, partnering is becoming vital
- JTTRR is the key supporting document for planning the appropriate Joint Warfighter Test & Training Infrastructure



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## Part 2

# Joint Interoperability Issues

# Interoperability



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- Major initiative throughout DoD - emerging impetus in USJFCOM, JCS, and OSD
  - UCP
  - QDR / DPG
  - UJTL 4.0 (JITs)
  - FY-03 Program Review
- Both test and training implications
- Will require live and synthetic exercises for test, experimentation, and training
- Linking ranges will be a strongly considered option to satisfying emerging training strategies



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# Training Shortfalls

## (From a joint operator's perspective...)

### *Kosovo After Action Report*

- "Operation Allied Force validated the need for joint, integrated training among the Services to enhance their ability to execute both joint and coalition operations."
- "Operation Allied Force underscores the criticality of joint doctrine, interoperability training, and supporting Service doctrine, tactics, techniques and procedures. Greater emphasis must be placed on interoperability training among our own forces, with those of our allies, other nations, and partners, as well as on interagency training within our Government."

### Common Threads

- Lack of joint/interoperability training
- Lack of training system(s) compatibility



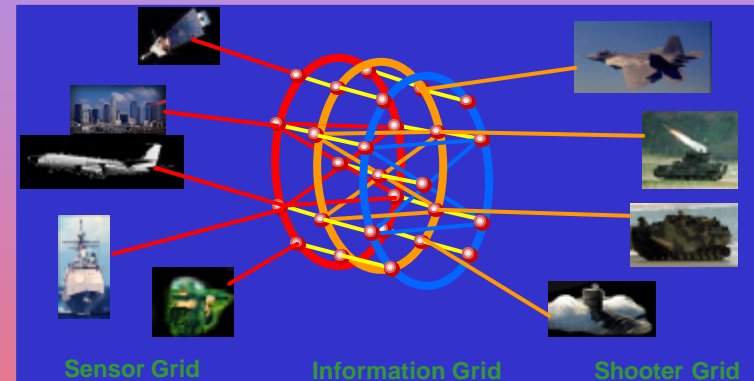
# Training range requirements for emerging and future forces are even greater



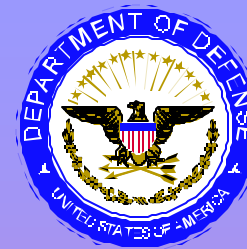
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- Training for Network Centric Warfare (NCW) requires:

- Networked ranges
- Live/simulated fused sensor-shooter inputs
- Simulation-supported communication networks
- Command & Control integrated with force training



- Regular joint and interoperability training for units of JTFs
- Larger air and land space – co-location in Southwest provides opportunities for land connections
- Urban Operations require new training infrastructure
  - Larger Scale
  - Combined Arms Capable
  - Diversified
  - Pervasive, basic through advanced



# Future Training Environment Live / Virtual / Constructive

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Seamless Training Environment

Constructive  
(simulation)

JSIMS

Virtual  
(simulators)

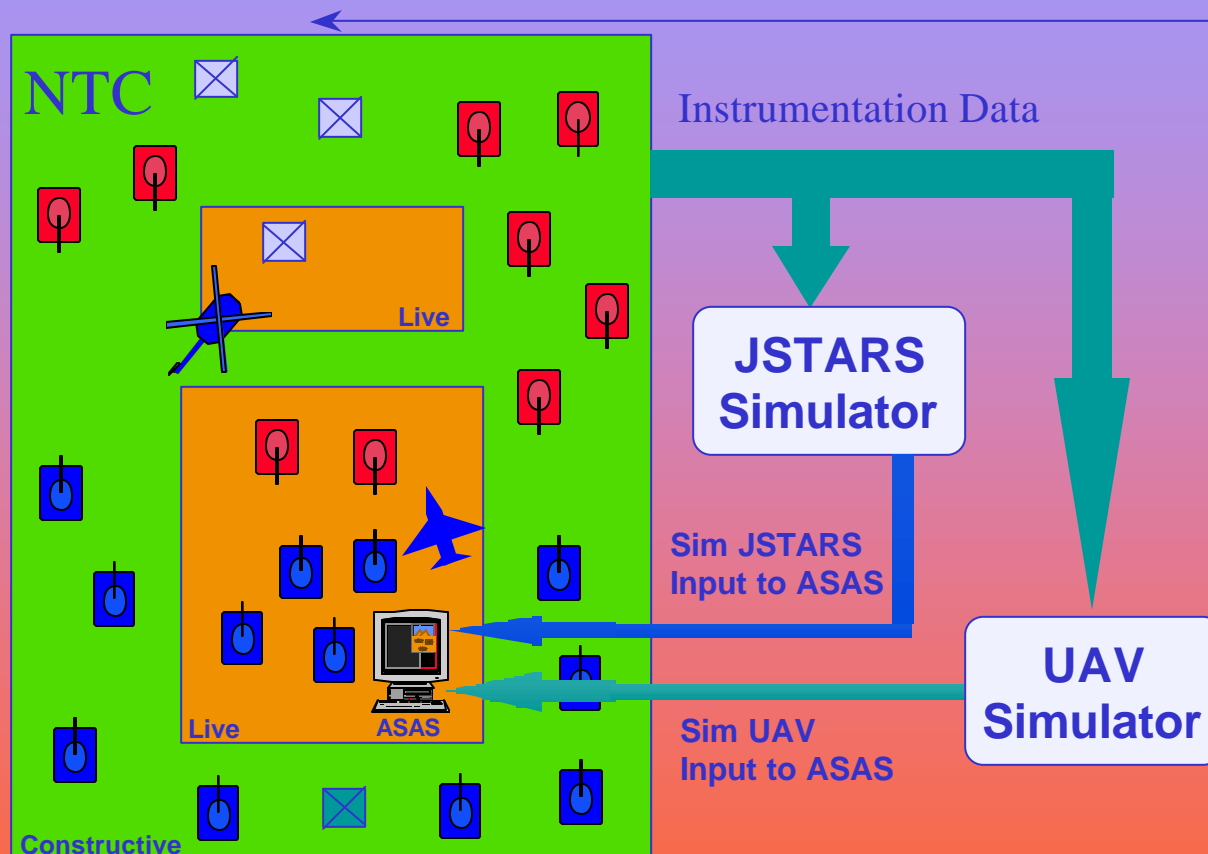
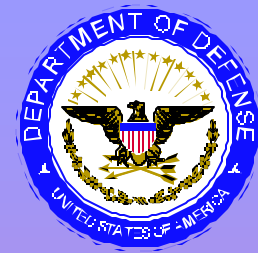
CATT ↔ BFTT ↔ DMT

Live  
(ranges)

RIS ↔ OIS ↔ JTCTS

*Connect live, virtual and constructive simulation and instrumentation systems to flexibly support on-demand, mission and force specific training requirements.*

# Example of Training for the Transformed Force



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- JANUS constructive simulation surrounds live operations at NTC
- Expands the Battlefield – allows full participation of intelligence battalion
- Adds ~600 entities

*M&S providing relevant, on-demand JSTARS & UAV support (simulated) to Army Ground forces*

# Conclusions



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- **Each of these issues are hot button topics**
  - DOT&E and DUSD(R) now work in close collaboration and consult regularly at the top
    - Action Officers in routine communication on these issues
  - DUSD(ES) included as appropriate
- **Defense Test & Training Steering Group**
  - Utilize the DTTSG to examine critical test & training range issues, including instrumentation, encroachment, management (funding), and interoperability, provide policy guidance.



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BACKUP



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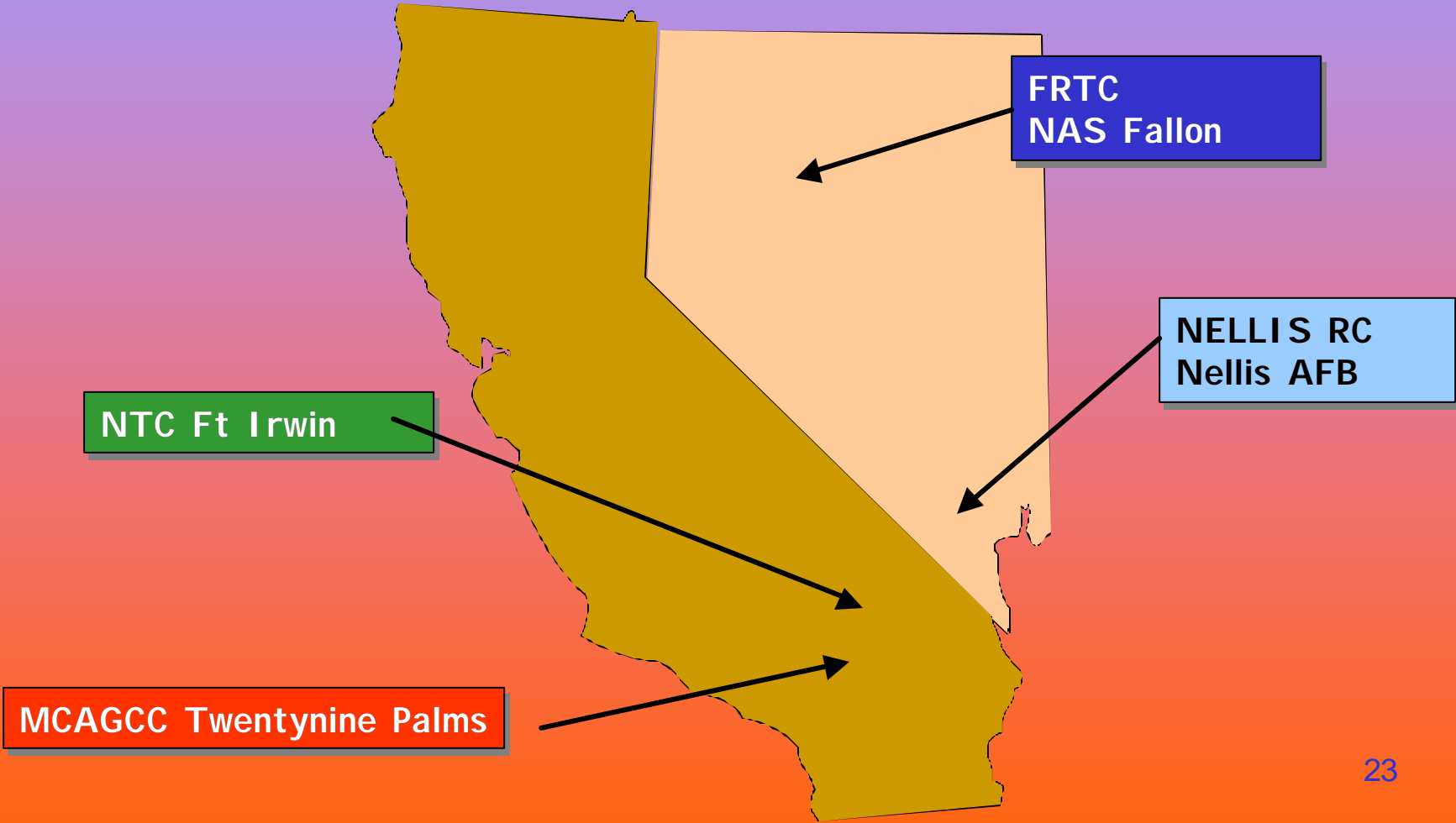
## Part 3

Who comprises the training  
community?

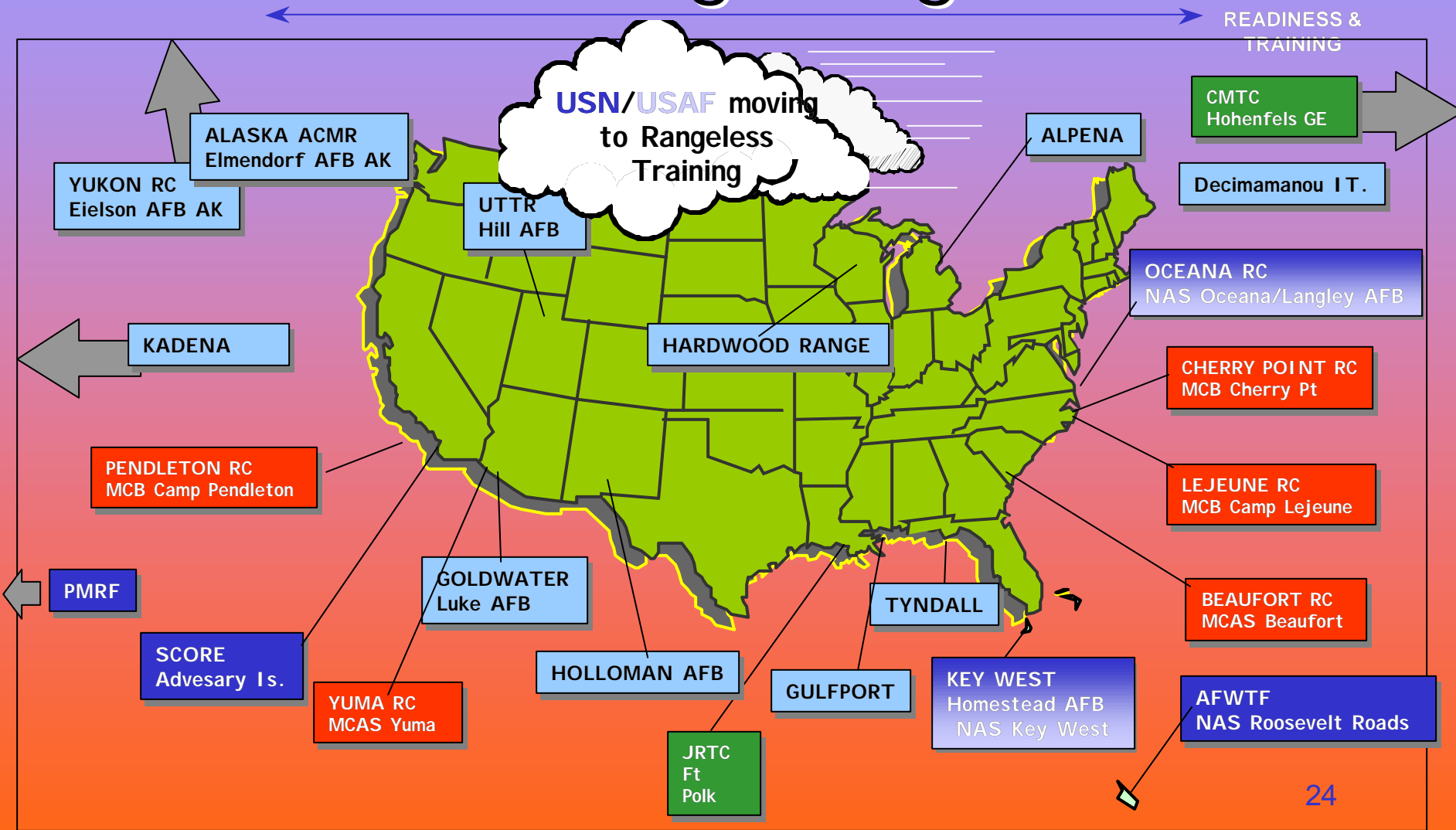
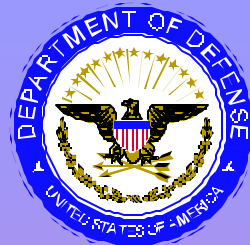
# Training Range Crown Jewels



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# Other Major Tactical Training Ranges





# And lots of other Training Ranges....



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Location	Military Service	Range
AL	Army	Fort McClellan
AL	Army	Fort Rucker
AK	Army	Fort Greely
AK	Army	Fort Wainwright
AK	ARNG	Stewart River Training Site
AK	Air Force	ACMI Area, Elmendorf AFB
AK	Air Force	Yukon Range Complex
AR	Army	Pine Bluff Arsenal
AR	ARNG	Camp Robinson
AR	Air Force	Little Rock AFB
AZ	Army	Fort Huachuca
AZ	ARNG	Campo Navajo
AZ	ARNG	Florence Military Reservation
CA	Army	Campo Roberts
CA	Army	Fort Hunter-Liquest
CA	Army	Campo Parks
CA	ARNG	Campo San Luis Obispo
CA	Marine Corps	Mountain Warfare Training Center, Bridgeport
CA	Navy	El Centro Range Complex, Naval Air Facility, El Centro
CA	Navy	Point Mugu
CO	Air Force	Schriever Air Force Base
CO	Army	Fort Carson/Pinvon Canyon
FL	Army	Campo Blandino
FL	Navy	Pinecastle/Jacksonville
GA	Air Force	Grand Bay Range, Moody Air Force Base
GA	Army	Fort Benning
GA	Army	Fort Gordon
GA	Army	Fort Stewart
HI	Army	Pohakuloa Training Area
HI	Army	Schofield Barracks
HI	ARNG	Keaaukaha Reservation
HI	Navy	Pacific Missile Range Facility
ID	Army	Gowan Field
ID	ARNG	Orchard Training Area
ID	Air Force	Mountain Home AFB
IL	ARNG	Marseilles Training Area
IN	Army	Campo Atterbury
IO	ARNG	Campo Dodge
KS	Army	Fort Leavenworth
KS	Army	Fort Riley
KS	ARNG	Smokey Hill Training Area
KY	Army	Fort Campbell
KY	Army	Fort Campbell
KY	Army	Fort Knox
KY	ARNG	Wendell Ford training Area
LA	Air Force	Barksdale AFB
LA	Army	Joint Readiness Training Center, Fort Polk

LA	ARNG	Campo Beauregard
LA	ARNG	Campo Villere Training Site
MA	Army	Devens Training Area
MA	ARNG	Campo Edwards
MD	ARNG	Lt Aaron Training Site
ME	ARNG	Boa Brook/Riley training Site
ME	ARNG	Deepwoods
MI	Army	Campo Grayling
MI	Army	Campo Shelby
MI	ARNG	Fort Custer
MN	Army	Campo Ripley
MO	Army	Fort Leonard Wood
MO	ARNG	Campo Clark
MO	ARNG	Campo Crowder
MO	ARNG	Macon Training Site
MO	ARNG	Wapocello Training Site
MI	ARNG	Campo McCain
MS	Air Force	Columbus AFB
MT	ARNG	Fort Harrison
MT	ARNG	Limestone Hills
NC	Army	Fort Bragg
NC	Army	Ocean Terminal Sunny Point
NC	ARNG	Campo Butler
NC	Air Force	Dare County AC/EC Range
ND	ARNG	Campo Grafton
NE	ARNG	Hastings Training Site
NJ	Army	Fort Dix
NM	ARNG	Camel Tracks Training Site
NM	ARNG	Roswell Training Site
NM	Air Force	Melrose AC/EC
NY	Army	Fort Drum
NY	ARNG	Campo Smith
OH	ARNG	Ravenna/Perry
OK	Army	Campo Gruber
OK	Army	Fort Sill
OK	Air Force	Altus AFB
OR	ARNG	Campo Riley
OR	ARNG	Central Oregon Training Site
OR	Air Natl Grd	Kingsley Field
PA	Army	Fort Indiantown Gap
PR	Army	Fort Buchanan
PR	ARNG	Campo Santiaao
SC	Air Force	Poinsett AC/EC
SC	Army	Fort Jackson
SD	Air Force	Ellsworth AFB
TN	ARNG	Catoosa Training Site
TN	ARNG	Milan Training Site
TN	ARNG	Tullahoma Training Site
TX	Army	Fort Bliss

TX	Army	Fort Hood
TX	Army	Fort Sam Houston
TX	ARNG	Campo Bowie
TX	ARNG	Campo Maxev
TX	ARNG	Campo Swift
TX	ARNG	Fort Wolters
TX	Air Force	Laughlin AFB
TX	Air Force	Randolph AFB
TX	Air Force	Shppard AFB
UT	Army	Dugway Proving Grounds
UT	ARNG	Campo Williams
VA	Army	Fort AP Hill
VA	Army	Fort Eustis/Story
VA	Army	Fort Lee
VA	Army	Fort Story
VA	ARNG	Campo Pickett
VA	Marine Corps	Marine Corps Base Quantico
Va	Air Force	Langley AFB
VT	ARNG	Campo Ethan Allen
WA	Army	Fort Lewis / Yakima
WA	ARNG	Campo Wismer Training Site
WI	Army	Fort McCoy
WV	ARNG	Campo Dawson
WY	ARNG	Campo Guernsey

# Active Range Cooperatives



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- **Chesapeake Regional Range Complex**
  - Aberdeen PG, Md - Fort A.P. Hill - NSWC Dam Neck, VA - NAWCAD Pax River, MD - NASA Wallops Is., VA - CINCLANTFLT Norfolk, VA
- **South-Eastern Test & Training Area**
  - NAS Pensacola, - NAS Whiting, - Alabama ANG, - Ft Gillem, - Ft Rucker, - Tyndall AFB, - Eglin AFB, - Hurlburt Fld
- **Littoral Warfare Training Complex**
  - VACAPES, Cherry Pt, NC, - Camp LeJeune, NC - Beaufort, SC - AUTECH - AFWTF - Key West, FL
- **Western Ranges (number of alternatives)**
  - Southwest Test & Training Range
  - Expeditionary Force Training Complex (Pacific area Navy/USMC)
  - Southwest Defense Complex
  - Southwest Ranges Alliance

# Service Training Instrumentation Organizations



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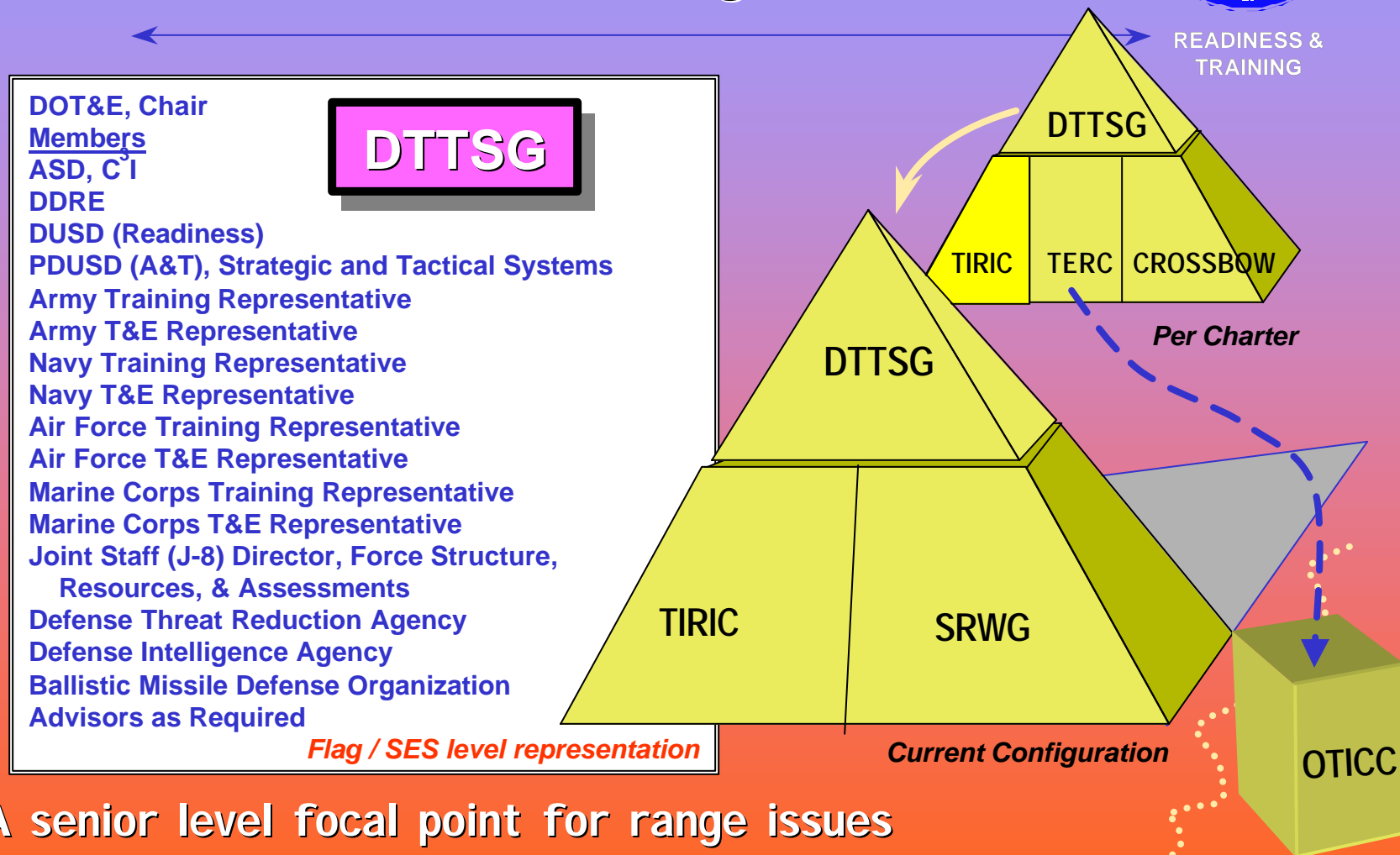
## Acquisition

- U.S. Army - STRICOM (PMTRADE)
  - DAMO -TR provides oversight\*
- U.S. Navy - NAVAIR (PMA-248)
  - N889 validates requirement & provides oversight\*
- U.S. Air Force - AAC (RI SPO)
  - AF/XOOR provides oversight\*
- U.S. Marine Corps - MARCORPSYSCOM (PMTRA)
  - MCCDC (C46\*) provides oversight\*

## Requirements

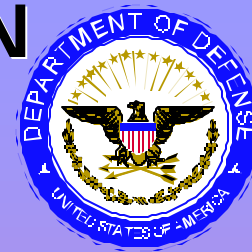
- U.S. Army - TRADOC-ATSC Ft Eustis / Installation Commanders
- U.S. Navy - Fleet CINCs / Type Commanders (Aviation Lead)
  - N889 Oversight & Validation
- U.S. Air Force - ACC/XOR (Lead) & MAJCOMS
  - Combat Training Range (CTR) PROCESS
- U.S. Marine Corps - Base & Station Commanders
  - MCCDC (C46) oversight

\* Members of the  
Training Instrumentation Resource Investment Committee



- **A senior level focal point for range issues**
  - **“Change agent” at heart of test-and-training cooperation dialogue**

# TRAINING INSTRUMENTATION RESOURCE INVESTMENT COMMITTEE



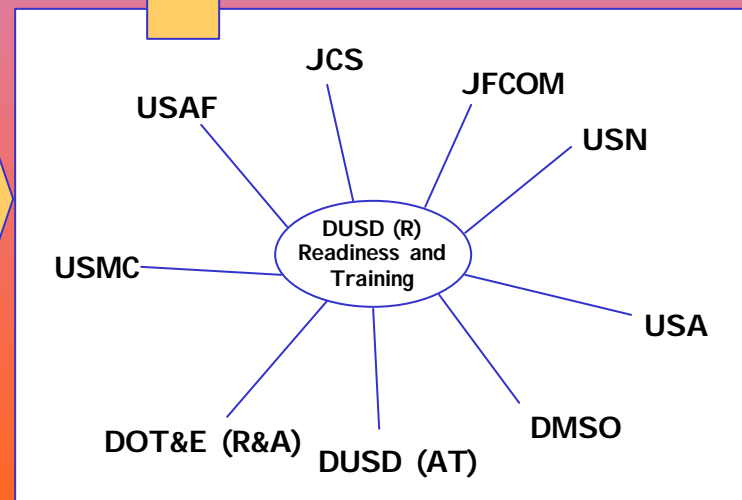
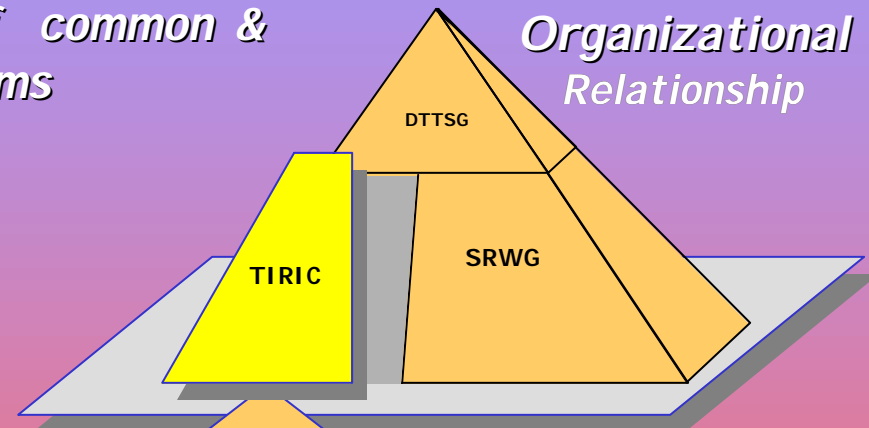
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*Organizational  
Relationship*

**MISSION:** *Ensure efficient acquisition of common & interoperable range instrumentation systems*

## **TIRIC Goals / Responsibilities**

- Develop training community input into the Joint Training and Test Range Roadmap (JTTRR)
- ~~Develop Training Range Information System (TRIS)~~ (overtaken by FACITT)
- Identify Training Range Instrumentation and Operating Budget Profiles
- Significantly improve participation in OSD / Congressional Budget Cycle
- Improve inter-service training range coordination
- Improve Training and Test coordination
  - Investments
  - Utilization



**TIRIC Membership**

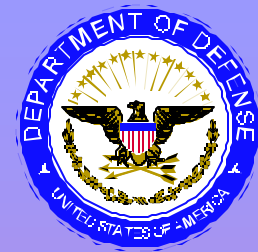
# Key Training Instrumentation Programs



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- U.S. Army
  - Live
    - SAWE - CTC/IS - TWGSS - MILES 2000 - JRTC MOUT - NTC RDMS - OPFOR Mods - CMTC Live Fire - CTC ABCS Integration - Helo AGES
  - Virtual
    - CCTT - FSCATT - AVCATT
  - Constructive
    - One SAF - WARSIM - CSTAR - FAMSIM sustainment

# Key Training Instrumentation Programs



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- U.S. Navy
  - JTCTS: Deployable, unit level training instrumentation (Joint Program with Air Force)
  - SWTR: Shallow water littoral warfare training range
  - TACTS: Upgrades to current capability, primarily additional aircraft and weapons systems
- U.S. Marine Corps
  - RIS: Ground instrumentation for all personnel, vehicles, and weapons

# Key Training Instrumentation Programs



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- U.S. Air Force
  - JTCTS: Deployable, unit level training instrumentation (Joint program with USN)
  - ACTS: Sustainment & upgrade of legacy / interim instrumentation systems to include aircraft integration & software interoperability
  - JAWSS: Acquisition integrated air-to-ground weapons scoring system
  - EW Upgrade / ATES: Advanced threat emitters through upgrade and new designs



# Points of Contact



←————→  
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- OSD
  - Training: Mr. John Walsh  
Chairman, Training Instrumentation Resource Investment Committee  
(703) 695-1760
  - Test: Mr. Parker Horner  
Range Planning  
(703) 578-8222
- JTTRR Development
  - Training: Mr. Lou Husser - (703) 578-5749
  - T&E: Mr. Steve Seiden - (703) 575-0524

# JTTRR Goals



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- Well defined planning process which identifies opportunities for collaborative instrumentation investment and use
- Foundation for common and interoperable instrumentation
- No unwarranted duplication
- Shared technology
- Jointly/mutually sustained DoD range instrumentation
- Increased cooperative use of range assets
- Multi-mission equipment

# Important Support Issues on the Table



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- **Range Investments**
  - JTTRR
- **Synergistic Land Use**
  - NTC - China Lake - Twentynine Palms
- **Technical Standards / Interoperability**
  - HLA- TENA
- **Range Cooperatives**
  - CRRC, SETTA, Western Range Co-Op, SCORE

# Four Service MOU Organization



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## Inter-Service Training Instrumentation Investment Organization

**JEC**

**JAMB**

**JUC**

### Joint Executive Committee (JEC):

- Sponsor and Headquarters representatives chartered by MOU signed by Vice-Chiefs
- Establish goals and policies; validate interoperability requirements
- Rotating Chair

### Joint Acquisition Management Board (JAMB):

- Instrumentation Program Managers
- Coordinate acquisition responsibilities IAW separate MOA signed by acquisition commanders
- Co-chaired with rotating hosts

### Joint Users Committee (JUC)

- Users representatives
- Identify interoperability requirements
- Co-chaired with rotating hosts



# Joint and Interoperability Training

**As you may remember we said last year...** **READINESS & TRAINING**

## The Good News

- Joint Training System establishes solid foundation
- UJTL and JMETL established
- USJFCOM established
  - Expanded mandate authority
  - Good progress on JTF staff training
  - Interoperable tasks defined
- Some cross-Service training at unit level
  - Largely on ad-hoc basis

## The Bad News

- Not routinely occurring at unit level
- JTS implementation uneven
  - UJTL application not uniform
  - Lack of training tools (JSIMS) (JTIMS))
  - Not linked to readiness reporting
- Inadequate funding / coordination of test and training range instrumentation modernization

## **THE CHALLENGE:**

- **Need to improve Joint/Interoperability Training, acknowledging Funding constraints, Tempo constraints, Need to train to core competencies**

**.....Well, progress continues but slowly... funding!!**